



UNITED STATES PATENT AND TRADEMARK OFFICE

CR

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/755,535

01/12/2004

Shinichi Fukuda

450100-04883

1332

7590

08/22/2006

FROMMER LAWRENCE & HAUG LLP
745 FIFTH AVENUE
NEW YORK, NY 10151

EXAMINER

CHAUDRY, MUJTABA M

ART UNIT

PAPER NUMBER

2133

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/755,535

Applicant(s)

FUKUDA, SHINICHI

Examiner

Mujtaba K. Chaudry

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 1 and 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Preliminary Amendment

The preliminary amendment filed January 12, 2004 has been received. Minor amendments to claims 2 and 3 were made. Claims 1-4 are presented for examination.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. The priority date granted is January 14, 2003.

Oath/Declaration

The Oath filed June 01, 2004 complies with all the requirements set forth in MPEP 602 and therefore is accepted.

Drawings

The drawings submitted January 12, 2004 are objected to because:

- Figure 7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed

of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

- Figure 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
- Figure 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
- Figure 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page

Art Unit: 2133

header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

- Figure 11 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Appropriate correction is requested.

Specification

The specification is objected to because:

- On page 6, line 28, the term "nears" should be "near".

Correction is requested.

Claim Objections

Claim 1 is objected to because of the following informalities:

Art Unit: 2133

- In line 3, the limitations inside the parenthesis are to be avoided. Applicants are urged to state limitations outside parenthesis to ensure limitation is considered. Normally, only reference characters for the figures are permissible in the claim language within parenthesis. See MPEP 2173.05(s) and corresponding rejection under 35 USC 112 heading, below.
- In line 5, the phrase, "...first series code..." should recite "...a first series code..."
- In line 7, the phrase, "...second series code..." should recite "...a second series code..."
- In line 10, the phrase, "...recording control means..." should recite "...a recording control means..."

Appropriate correction is required.

Claim 4 is objected to because of the following informalities:

- In line 3, the limitations inside the parenthesis are to be avoided. Applicants are urged to state limitations outside parenthesis to ensure limitation is considered. Normally, only reference characters for the figures are permissible in the claim language within parenthesis. See MPEP 2173.05(s) and corresponding rejection under 35 USC 112 heading, below.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

Art Unit: 2133

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In line 3, the claim recites, in part, "...having N recording heads (**where N is a plural number**)..." It is not clear if the language in parenthesis is a definite limitation since parenthesis usually signify comments, which may be relative. The Examiner presumes that the limitation inside the parenthesis is necessary to make the claim definite and will consider it as such. Therefore parenthesis are to be omitted. Additionally, the phrase in the parenthesis should preferably be replaced with, "where $N > 1$ ".
- In lines 11 and 12, the claim recites, in part, "...second series code is recorded by N recording heads in a **dispersed manner**..." The phrase, "dispersed manner" is a relative phrase since "dispersed" could be defined in multiple ways. For the purposes of examination this limitation will not be considered.
- In lines 13 and 14, the claim recites, in part, "...said second series code generating means generates said second code such that **a ratio of said second parity to said second series code becomes 1/N or more**". It is not clear what this really means. The ratio is interpreted as: **ratio = second parity / second series code = 1 / N or more**, which means the **second parity = second series code / N** or alternatively it could also mean that the **second parity = 1** and the **second series code = N**. It is not clear from the claim. And if the "or more" were to be applied which means that the **ratio = 1/N**

is to increase, that implies that N is to decrease so that the overall ratio would increase, i.e., $1/4 = .25$ and $1/3 = .33$. If N were to decrease then what would happen to the second parity and the second series code. Well, if N were to decrease and $\text{second parity} = \text{second series code} / N$ then the second parity would increase as well. It is not clear how the Applicant is defining the ratio between the second parity and the second series code or how the second parity can increase. It seems as though the Applicant is attempting to define the ratio of two things—second parity and second series code—and is using an extra variable, namely N. Normally, ratio is defined between two quantities, i.e., the ratio of A:B is $3/4$. To the extent possible, Examiner will make interpretation in accordance with MPEP 2111.

Appropriate correction is required.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- In line 3, the claim recites, in part, "...having N recording heads (**where N is a plural number**)..." It is not clear if the language in parenthesis is a definite limitation since parenthesis usually signify comments, which may be relative. The Examiner presumes that the limitation inside the parenthesis is necessary to make the claim definite and will consider it as such. Therefore parenthesis are to be omitted. Additionally, the phrase in the parenthesis should preferably be replaced with, "where $N > 1$ ".

- In lines 11 and 12, the claim recites, in part, "...second series code is recoded by N recording heads in a **dispersed manner**..." The phrase, "dispersed manner" is a relative phrase since "dispersed" could be defined in multiple ways. For the purposes of examination this limitation will not be considered.
- In lines 7 and 8, the claim recites, in part, "...a ratio of said second parity to said second series code becomes 1/N or more". It is not clear what this really means. The ratio is interpreted as: ratio = second parity / second series code = 1 / N or more, which means the second parity = second series code / N or alternatively it could also mean that the second parity = 1 and the second series code = N. It is not clear from the claim. And if the "or more" were to be applied which means that the ratio = 1/N is to increase, that implies that N is to decrease so that the overall ratio would increase, ie. $1/4 = .25$ and $1/3 = .33$. If N were to decrease then what would happen to the second parity and the second series code. Well, if N were to decrease and second parity = second series code / N then the second parity would increase as well. It is not clear how the Applicant is defining the ratio between the second parity and the second series code or how the second parity can increase. It seems as though the Applicant is attempting to define the ratio of two things—second parity and second series code—and is using an extra variable, namely N. Normally, ratio is defined between two quantities, i.e., the ratio of A:B is $\frac{3}{4}$. To the extent possible, Examiner will make interpretation in accordance with MPEP 2111.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dodt et al.

(herein after: Dodt, USPN 5369641) further in view of Misawa et al. (herein after: Misawa, USPN 6560402 B1).

As per claim 1, Dodt substantially teaches a recording apparatus of a helical scan type capable of recording data as inclined tracks onto a tape-shaped recoding medium (col. 18, lines 42-46, for example) comprising: a rotary drum having N recording heads on a circumference thereof (Figure 3 and col. 3, line 63—col. 4, lines 1-6); first series code generating means for generating a first series code by adding a first parity to a first data array in a predetermined direction (col. 11, lines 6-8). The Examiner would like to point out that the first parity is done on a row-by-row basis, which is analogous to a predetermined direction. Dodt also teaches a second data array in a direction orthogonal to said direction of said first data array (col. 2, lines 35-38); and recording control means for controlling recording such that said first series code is recorded by one of said N recording heads and said second series code is recorded by said N recording heads in a dispersed manner, on said tape-shaped recording medium, (Figure 4, reference number 411, shown below, and col. 2, lines 35-38) wherein said second series code generating means

Art Unit: 2133

generates said second series code such that a ratio of said second parity to said second series code becomes $1/N$ or more (i.e., Figure 7 and col. 2, lines 40-43). Dodt teaches the first code is generated on per data segment whereas the second code is generated across multiple data segments.

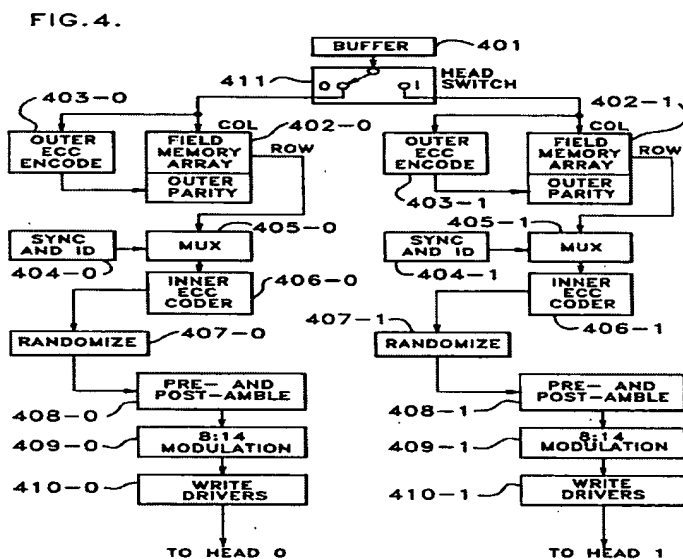
Dodt, Figure 4:

U.S. Patent

Nov. 29, 1994

Sheet 3 of 12

5,369,641



Dodt does not explicitly teach the second series code generating means for generating a second series code by adding a *second parity* as stated in the present application.

Misawa, Figures 1 and 3:

Fig. 1(a)

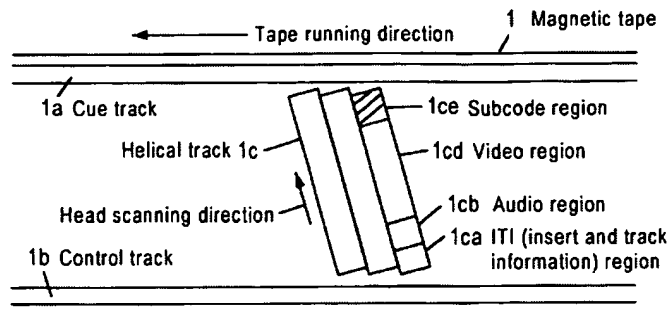
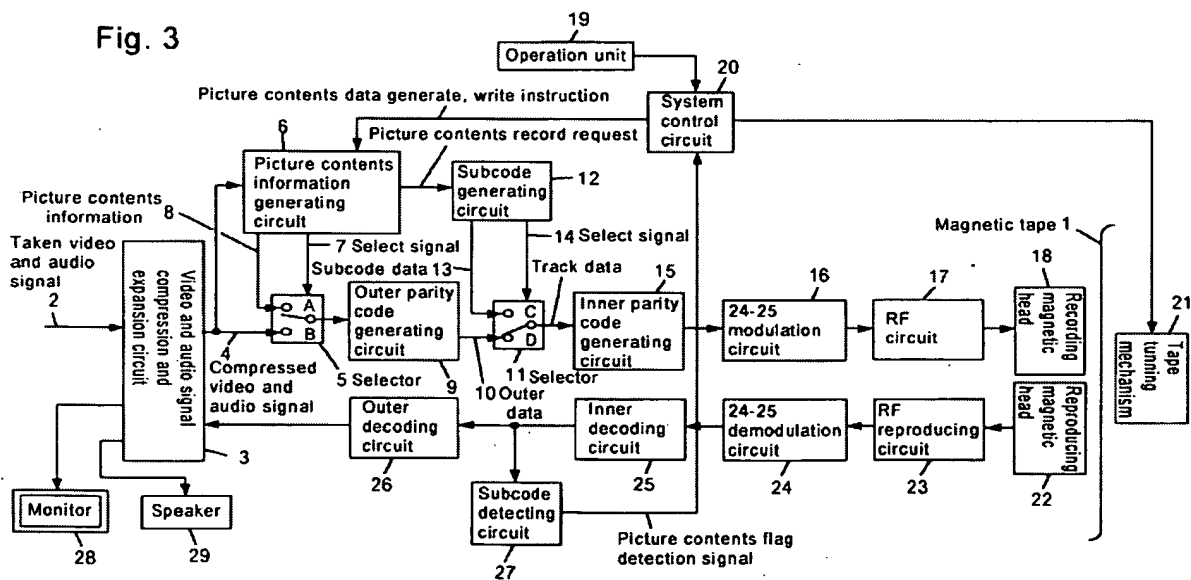


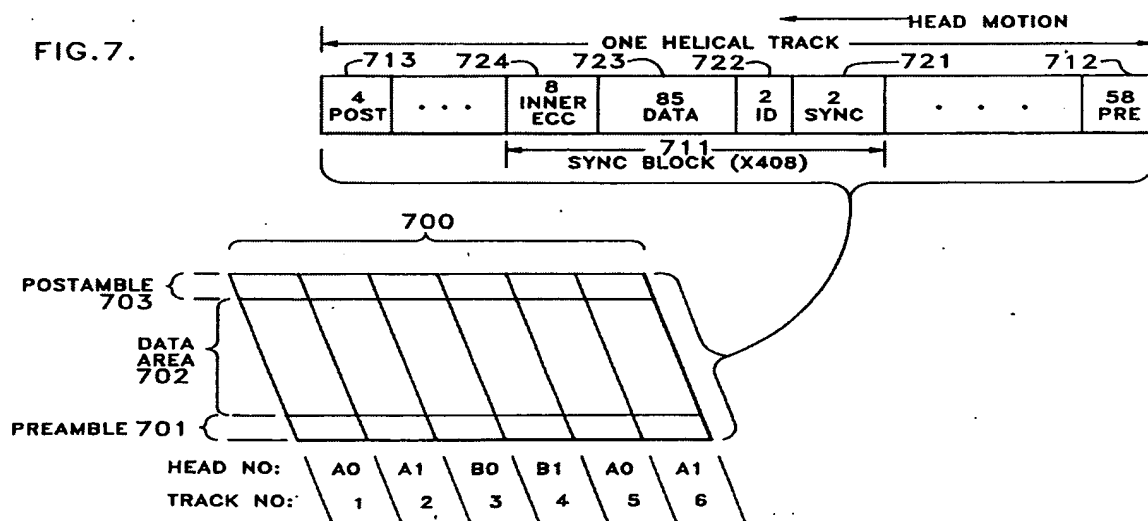
Fig. 3



However, Misawa teaches, in an analogous art, (Figures 1 and 3, shown above) a magnetic tape 1 has a cue track 1a in the tape running direction, and a control track 1b disposed at both ends of the tape, and a helical track 1c disposed in the center. Particularly, Misawa teaches (i.e., Figure 3 and col. 4, lines 10-23) an outer parity code generating circuit 9 (analogous to first series code generating means) and an inner parity generating circuit 15 (analogous to

Art Unit: 2133

second series code generating means). In other words, Misawa teaches a second series code generating means (Figure 3, reference 15) for generating a second series code by *adding a second parity*. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the second series code generating means of Dodt to generate a second series code by adding a second parity. This modification would have been obvious to one of ordinary skill in the art because one of ordinary skill in the art would have recognized that by making the second series code generating means of Dodt to generate a second series code by adding a second parity would have improved on the error detection/correction as well as improved the overall speed of the system during recording and/or retrieval (Misawa, col. 2, lines 35-37).

Dodt, Figure 7:

As per claim 2, Dodt substantially teaches, in view of above rejections, (Figure 7, shown above and col. 3, lines 40-42) the number N of recording heads are 4 or more.

As per claim 3, Dodt substantially teaches, in view of above rejections, (Figures 2, 4, and 7 and col. 7, lines 26-31) the first series code is recorded across a plurality of tracks, which are formed by one of the N recording heads.

As per claim 4, Dodt substantially teaches a recording method of a helical scan type capable of recording data as inclined tracks onto a tape-shaped recoding medium (col. 18, lines 42-46, for example) by N recording heads on a circumference thereof (Figure 3 and col. 3, line 63—col. 4, lines 1-6); generating a first series code by adding a first parity to a first data array in a predetermined direction (col. 11, lines 6-8). The Examiner would like to point out that the first parity is done on a row-by-row basis which is analogous to a predetermined direction. Dodt also teaches a second data array in a direction orthogonal to said direction of said first data array (col. 2, lines 35-38); and controlling recording such that said first series code is recorded by one of said N recording heads and said second series code is recorded by said N recording heads in a dispersed manner, on said tape-shaped recording medium, (Figure 4, reference number 411, shown above, and col. 2, lines 35-38) wherein generating said second series code such that a ratio of said second parity to said second series code becomes $1/N$ or more (i.e., Figure 7 and col. 2, lines 40-43). Dodt teaches the first code is generated on per data segment whereas the second code is generated across multiple data segments.

Dodt does not explicitly teach the second series code generating means for generating a second series code by adding *a second parity* as stated in the present application.

However, Misawa teaches, in an analogous art, (Figures 1 and 3, shown above) a magnetic tape 1 has a cue track 1a in the tape running direction, and a control track 1b disposed at both ends of the tape, and a helical track 1c disposed in the center. Particularly, Misawa

Art Unit: 2133

teaches (i.e., Figure 3 and col. 4, lines 10-23) a outer parity code generating circuit 9 and a inner parity generating circuit 15. In other words, Misawa teaches a second series code generating means (Figure 3, reference 15) for generating a second series code by adding a second parity. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the second series code generating means of Dodt to generate a second series code by adding a second parity. This modification would have been obvious to one of ordinary skill in the art because one of ordinary skill in the art would have recognized that by making the second series code generating means of Dodt to generate a second series code by adding a second parity would have improved the overall speed of the system during recording and/or retrieval (Misawa, col. 2, lines 35-37).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Additional pertinent prior arts are included herein for Applicant's review:

Konno et. al. (USPN 5084786) teach a helical scan tape apparatus including a first pair of magnetic heads having mutually different azimuth angles disposed on a peripheral face of a rotary drum at an angle interval of 180 degrees so as to oppose each other, a second pair of magnetic heads disposed on of the rotary drum so as to be perpendicular to a disposition direction of the first magnetic heads, a magnetic tape helically wound around the rotary drum so as to extend over an angle of 90 degrees, the tape being moved while the drum is controlled to rotate in synchronism with a reference signal, the first magnetic heads having a wider gap width than a track pitch of tracks recorded on the tape without providing a guard band for enabling azimuth recording of a data signal on the tracks, the data signal being recorded repeatedly into a particular recording area, wherein the first magnetic heads are used substantially for recording and the second magnetic heads are used substantially for reproduction and are positioned with a downward shift in the height direction of the drum equivalent to half of a scanning width of the second magnetic heads as compared with said first magnetic heads. Alternatively, the second magnetic heads may be disposed with a predetermine amount of shift so that an end of said second magnetic heads opposite to a tape traveling direction is located within a track recorded in advance by a predetermined value.

Yoshiura et. al. (USPN 6079043) teach a magnetic disk apparatus which is provided with means for dividing a large amount of data such as video data into segments with error correction code added thereto and further dividing the data including the error correction code

Art Unit: 2133

into recording segments, while being capable of efficiently correcting errors even for a sector size of large unit and processing sectors of variable length.

Sugiyama et. al. (USPN 6292623) teach an image data reproducing method which is possible to obtain a search picture with high quality, a reproducing speed control apparatus, and a recording/reproducing apparatus by finding search speed that it is possible to reproduce image data as much as possible by using the most effectively plural reproducing heads in reproducing a search picture and by setting to the speed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mujtaba K. Chaudry whose telephone number is 571-272-3817. The examiner can normally be reached on Mon-Thur 9-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on 571-272-3819.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mujtaba Chaudry
Art Unit 2133
August 17, 2006